

Case 3384

***Cornwallius tabatai* Tokunaga, 1939 (currently *Paleoparadoxia tabatai*; Mammalia, Desmostylia): proposed conservation of usage of the specific name by the designation of a neotype**

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Abstract. The purpose of this application, under Article 75.8 of the Code, is to conserve the specific name of *Paleoparadoxia tabatai* (Tokunaga, 1939) in its accustomed usage for a species of Middle Miocene desmostylian from Japan and California. The name has been widely used for this desmostylian since 1939 as defined by the neotype NSM-PV 5601 from the Akeyo Formation, Gifu Prefecture, Japan, designated by Shikama (1966). The accustomed usage is threatened by a recently discovered tooth supposedly belonging to the type series and designated as the lectotype by Inuzuka (2005). It is proposed that all type fixations prior to that by Shikama (1966) and the designation of a lectotype by Inuzuka (2005) be set aside.

Keywords. Nomenclature; taxonomy; Desmostylia; PALEOPARADOXIIDAE; *Paleoparadoxia*; *Paleoparadoxia tabatai*; Middle Miocene; Japan.

1. In 1939, Tokunaga (p. 296) established the specific name *tabatai* in the genus *Cornwallius* Hay, 1923 for two isolated teeth collected in 1923 from the late Early to early Middle Miocene Orito Formation, Niigata Prefecture, Japan. Because the two teeth were said to be collected 'from the same rock, quite close to each other', Tokunaga (1939, p. 292) believed that these teeth 'belonged most probably to the same animal' and designated the two teeth the 'type' of the new species in the original description. Under Article 72.1.1 of the Code, this is sufficient to recognize the 'type' as the syntypes. Unfortunately, the syntypes of *Cornwallius tabatai* were destroyed at Waseda University in Tokyo by fire on May 25, 1945.

2. Reinhart (1959, p. 94) proposed the binomen *Paleoparadoxia tabatai* in referring to the description of the syntypes by Tokunaga (1939), and assigned to the same species a mandible with a molar (University of California Museum of Paleontology, UCMP 40862) and an isolated molar (UCMP 32076) collected from California. Although these teeth were slightly smaller than the syntypes, these assignments have been accepted by all subsequent workers (e.g. Ijiri & Kamei, 1961; Mitchell & Repenning, 1963; Shikama, 1966; Barnes et al., 1985; Novacek & Wyss, 1989; Clark, 1991; Ray et al., 1994; Inuzuka et al., 1995; Domning, 1996, 2002; Taru, 2000).

3. Ijiri & Kamei (1961) described the skull and mandible of a nearly complete skeleton of a desmostylian discovered in 1950 from the late Early Miocene Akeyo Formation, Gifu Prefecture, Japan. It now bears the registration number NSM-PV 5601 at the National Museum of Nature and Science in Tokyo, Japan, and is commonly referred to in the literature as the Izumi specimen. Ijiri & Kamei (p. 19) identified it as *Paleoparadoxia tabatai* (Tokunaga, 1939) based on comparison with the California mandible that was referred to as *Paleoparadoxia tabatai* by Reinhart (1959).

4. Subsequently, Shikama (1966, pp. 154–155) described the appendicular bones of NSM-PV 5601, and designated this specimen as the neotype of *Cornwallius tabatai* Tokunaga, 1939 because the syntypes had been lost since 1945. However, Shikama did not give evidence that the neotype was consistent with what was known of the former name-bearing types. Instead he followed the concept and usage of *Paleoparadoxia tabatai* by Reinhart (1959) and Ijiri & Kamei (1961); the mandible and molars of NSM-PV 5601 coincide with those of Reinhart's California specimens (p. 8).

5. Although the designation of the neotype by Shikama (1966) insufficiently fulfilled Article 75.3 of the Code, all subsequent workers on *Paleoparadoxia tabatai* accepted his designation of NSM-PV 5601 as the neotype (e.g. Kamei & Okazaki, 1974; Sakamoto, 1983; Domning et al., 1986; Shimada & Inuzuka, 1994; Hasegawa et al., 1995; Domning, 1996; Saegusa, 2002) since it was unquestionably more informative for diagnosing *P. tabatai*.

6. Recently, Inuzuka (2005, p. 10) reported that a tooth purportedly collected at the same time from the same locality as the syntypes was preserved at a local museum near the type locality, and he thought this tooth 'probably' belonged to the same individual as one of the syntypes. He stated:

- (1) 'The Sawane specimen described here is a left third lower molar, and the two teeth Tokunaga (1939) described are identified as a left second lower molar and a fragment of an upper tooth'.
- (2) 'It is probable that the lower tooth belongs to the same individual due to its different tooth class of the same side, although the upper tooth is of a different individual due to its unworn condition'.
- (3) 'This molar is necessarily identified as *P. tabatai*, but is larger than and different from those of the Izumi specimen which has been designated the neotype'.
- (4) 'Consequently, the middle-sized Izumi specimen should be given a new specific name: *P. media*'.

He then designated the rediscovered third tooth as the lectotype of *Cornwallius tabatai*.

7. The lost syntypes and the 'third tooth' were said to be collected from the basal conglomerate as individual teeth with no jaw bone. Thus, there is no evidence of the individual relationships among the three teeth. The fact that the teeth represent different tooth classes of the same side of the jaw does not sustain the individual relationship. In addition, the 'third tooth' was not described or referred to by the original describer of *Cornwallius tabatai* (see Tokunaga, 1939) at all. Accordingly the 'third tooth' does not fulfil the requirements for name-bearing types under Article 72.4 of the Code.

8. Inuzuka (2005) also argued that the cheek teeth of the neotype were smaller than the syntypes of *Cornwallius tabatai*, so he proposed the name *Paleoparadoxia media* for this smaller species, with NSM-PV 5601 as the holotype. However, the binomen *Paleoparadoxia media* applied to the neotype of *Cornwallius tabatai* causes confusion in a number of ways. Although Inuzuka (2005) pointed to some morphological differences between the syntypes and the neotype, all subsequent workers have accepted Shikama's (1966) designation of NSM-PV 5601 as the neotype of *Cornwallius tabatai*, as mentioned above. Also, it is of special importance that a name should not be transferred to a taxon distinct from that to which it is generally applied, as emphasized in General Recommendation 1 of the Code. Therefore, the resurrection of the name-bearing types through the designation of a 'lectotype' of *Cornwallius tabatai* by this insecure interpretation at this time and in this complicated usage would be a blow to nomenclatural stability and universality.

9. The problem also extends to the taxonomy. Although the 'third tooth' was designated as the lectotype by Inuzuka (2005, p. 11), his emended diagnosis of *Cornwallius tabatai* was not based on any character of the lectotype itself. This contradicts Article 74.1 of the Code, which states that a lectotype is to be the standard for a name's application. In fact, the tooth is not diagnostic specifically; it is well known that tooth size and cusp arrangements are sexually and individually variable in the desmostylians. Whether the lost syntypes and the 'third tooth' from possibly the same locality belong to one individual or not, it is at present impossible to diagnose the species of *Paleoparadoxia* from the teeth. Therefore, NSM-PV 5601 is the most reliable material to diagnose the species and hence the most appropriate type for *P. tabatai* (Tokunaga, 1939).

10. The neotype of *P. tabatai*, though its designation did not fulfil some of the requirements under Article 75.3 of the Code, is unambiguous in its reference and is supported by much more informative skeletal material. Therefore, it is in the interest of stability to protect its designation as neotype from displacement by the insecure interpretation of the resurrected name-bearing types based on a less diagnostic isolated tooth as the 'lectotype'.

11. The name *Paleoparadoxia media* has had a destabilizing influence on nomenclature since the time of its proposal. Because the problems described above arise in part from Inuzuka's unfortunate decision to resurrect a 'type' based on the weakly supported designation of the 'third tooth' as the lectotype of *P. tabatai*, it is in the interest of stability to set aside this resurrection of the name-bearing type and to fix the designation of the previously proposed neotype.

12. We propose that the Commission fix as the neotype of *Cornwallius tabatai* Tokunaga, 1939 the nearly complete skeleton (National Museum of Nature and Science, Japan, NSM-PV 5601). If NSM-PV 5601 is fixed as the neotype of *Cornwallius tabatai* as proposed below, this will have a stabilizing effect by making *P. media* Inuzuka, 2005 a junior objective synonym of *Cornwallius tabatai* Tokunaga, 1939. This choice of a type specimen for *Cornwallius tabatai* is the most desirable because, of the specimens previously included in *Cornwallius tabatai* Tokunaga, 1939, almost all are referable to the same species as NSM-PV 5601 and because NSM-PV 5601 comprises the most complete and easily comparable material; i.e. the nearly complete skeleton, replicas of which are available for comparison in several museums around the world.

13. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside:
 - (a) all type fixations for the nominal species *Cornwallius tabatai* Tokunaga, 1939 prior to that by Shikama (1966);
 - (b) the designation of a lectotype by Inuzuka (2005);
- (2) to place on the Official List of Specific Names in Zoology the name *tabatai* Tokunaga, 1939, as published in the binomen *Cornwallius tabatai* and as defined by the neotype designated by Shikama (1966);
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *media* Inuzuka, 2005, as published in the binomen *Paleoparadoxia media* (a junior objective synonym of *Cornwallius tabatai* Tokunaga, 1939).

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